

Informal Notes of a Meeting with Steve Porter of HSE at Daresbury on 7 April 2004 to discuss Gasoline Pipeline Risk Assessment methodology

8 April 2004

Present:

Steve Porter
Rod McConnell

The purpose of the meeting was to review HSE's progress with reviewing PIPERS and applying LUP zones for gasoline pipelines.

1 This meeting was at the suggestion of Steve Porter following e-mail requests to Martin Goose to provide an update on the commitment HSE made at the 10 December meeting to provide the Panel paper after this had been considered at the January Panel meeting

2 Steve Porter has in fact presented 2 papers to panel meetings – the first an introduction to all the issues, and the second a review of the LUP zones which PIPERS produced. The zones being proposed at present include

- 50 metres for the inner zone based on pool fire size
- Various middle and outer zones depending on pipeline diameter with 16" lines having an 80 metres outer zone

The reason Steve Porter had wanted to discuss the results was that the results showed illogical zones – the inner and middle zones for 6" were less than 50 metres, yet the zones for 12" were less than 8". He wanted to ask me if I knew why this was occurring.

3 Towards the end of the meeting he expressed his thanks for the opportunity to discuss the issues and how important it was to obtain my agreement to the way forward – this made me think there are higher pressures involved which have made HSE come back to discuss the process with us.

4 It became clear that HSE have made little new or useful progress in defining the LUP zones. They have merely discussed the issues and run PIPERS. Steve Porter seems fairly relaxed about the process and believes they have till the end of this year to come up the LUP zones which should be applied. He therefore envisages more 1-to-1 discussions as their thinking develops. We also may still have an opportunity to influence their thinking.

5 No changes have yet been made to PIPERS to take out the ridiculous concept of a pinhole leak filling a 100 metre diameter pool over a 24-hour period. I again explained this to Steve Porter and he agreed to re-consider their model and get it changed. I showed him my simple spreadsheet which demonstrates the effect on the risks – he requested a copy so I will tidy it up and send it him. It became apparent to me that their models are so "black box" that they may not understand what they are calculating.

6 Steve asked if the latest version of pd 8010 includes a Building Proximity Distance (BPD) for gasoline. I phoned Jane and she came back with the suggestion that we contact Alan Thayne of HSE. Steve took his number and will make direct contact. On consulting the 2002 draft version of pd 8010 we found that gasoline is a Category B substance and is not included in the substances for which a BPD can be obtained. Looking at LPG, the BPDs are 6" = 25 metres, 8" = 35 metres, 12" = 50 metres, 16" = 60 metres, all at 80 bar. If we get our act together, we could get BPDs into 8010 as lower values than LPG, in which case, HSE would take the BPD as the inner zone distance rather than the standard 50 metres for all pipeline sizes.

7 My view as to the discrepancy in risk-based LUP middle and outer zones is that the source failure rate data plumbed into PIPERS is from a rather poor set of work done by WS Atkins in a report issued in August 1997. They have simply cross-correlated the failures with the population with no common sense smoothing for such a small dataset, so the failure rates jump around with smaller pipelines having lower failure rates than larger ones in some cases. As we found last week at the P5 meeting, no one seems to know where the failure rate data

being used by PIPERS was obtained. Steve pulled up several spreadsheets produced by Phil Wright, but had not come across the WS Atkins report. I promised to send him a copy. I will also send Peter Davis a copy – it contains all the CONCAWE failure rate data up to 1994 and Atkins' interpretation of spillage sizes into hole sizes. I have requested what data PIPERS is currently using for 6", 8", 12" and 16" gasoline pipelines from Steve Porter – really need to understand what data they are using and why – also we need to actively start re-working the data including

- latest CONCAWE data up to 2003
- UK data as compared to the rest of Europe
- consider collecting fault data

We need to gather a paper together on the failure rates and publish it to try and persuade HSE to accept better data on UK gasoline pipelines. We have an opportunity to influence this provided we do something asap.

8 We discussed the use of Leak Detection across the system. Like numerous other aspects in this whole discussion, this in a significant area of conservatism which HSE are including in their analysis. I would add it to the work they have done to soil soak-in, pool size development and escape, failure rate data, etc. all of which have large degrees of conservatism in their present analysis. The more "comfort zone" we can create in their papers to Panel, the less conservative there will be in their final LUP zones.

9 Steve suggested we have another meeting before I go to Chile on 8 May.

Rod McConnell

Planning Applications near Hazardous Installations (PADHI)

Summary of Land Use Planning Advice from HSE - see full Guidance Document for details

Sensitivity	Inner	Middle	Outer
1	✓	✓	✓
2	✗	✓	✓
3	✗	✗	✓
4	✗	✗	✗

Sensitivity	Description
1	<p>Offices, factories, warehouses, depots, farm buildings, non-retail markets, builder's yards</p> <ul style="list-style-type: none"> - occupants can be organised in an emergency - public not present or only in small numbers <p>Infill developments, 1 or 2 dwellings</p> <p>Accommodation less than 10 beds / 3 caravans</p> <p>Access roads, railways, tram tracks</p>

Sensitivity	Description
2	<p>Houses, flats, retirement flats, bungalows, caravans, mobile homes, hotels, guest houses, hostels, holiday camps, halls of residence</p> <ul style="list-style-type: none"> - people live - difficult to organise in an emergency - public not present or only in small numbers <p>Developments up to and including 30 dwelling units, not more than 40 per hectare, not high density</p> <p>Motorways, dual carriageways major transport links</p> <p>Accommodation up to 100 beds</p> <p>Restaurants, cafes shops, filling stations superstores, small shopping centres, stations terminals, 250 to 5000 m2 floor space</p> <p>Food festivals, picnic areas, Community centres</p> <p>Outdoor markets, funfairs (less than 100 people)</p>

Sensitivity	Description
3	<p>Hospitals, Convalescent homes, nursing homes, old peoples homes with warden onsite, sheltered housing, nurseries, creches, Schools and academies for children up to school leaving age</p> <p>Prisons, remand centres</p> <p>Places providing an element of care or protection, people vulnerable to injury, emergency action and evacuation very difficult</p> <p>Developments with more than 5000 m2 floor space where public can gather (retail, terminals, stations,</p> <p>Open air developments likely to attract general public 100 – 1000 people at one time</p>

Sensitivity	Description
4	<p>Large Hospitals, Convalescent homes, nursing homes, old peoples homes, sheltered housing, nurseries, crèches – vulnerable people, larger than 0.25 hectares</p> <p>Large Schools and academies for children up to school leaving age – larger than 1.4 hectares</p> <p>Open air developments likely to attract general public more than 1000 people at one time – Theme parks, Sports stadium and events, open air markets, outdoor concerts and pop festivals</p>